

REMARKS

Claims 1-8, 17-21 and 23-25 are pending in this application. By this Amendment, claims 1-3 and 5 are each amended to change "polyethylene" oxide glycol to "polyalkylene" oxide glycol. No new matter is added by this Amendment, support for the amendment to each of claims 1-3 and 5 being found in the original specification at, for example, page 3, line 19 to page 4, line 7.

I. Rejection Under 35 U.S.C. §112, First and Second Paragraphs

Claims 1-8, 17-21 and 23-25 were rejected under 35 U.S.C. §112, first paragraph as allegedly failing to comply with the written description requirement, and were rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite. In the Office Action, the Patent Office asserted that the recited carbon to oxygen ratio for polyethylene oxide glycol was improper as it exceeded the carbon to oxygen ratio for polyethylene.

By this Amendment, the term "polyethylene oxide glycol" in the claims has been replaced by the correct term "polyalkylene oxide glycol." The term "polyalkylene oxide glycol" is supported throughout the written description of the present specification, including at pages 3 and 4, and is clear and definite with respect to the recited carbon to oxygen ratio recited in claim 1. Accordingly, Applicants respectfully submit that the amended claims fully comply with the requirements of 35 U.S.C. §112, first and second paragraphs.

Reconsideration and withdrawal of these rejections are respectfully requested.

II. Rejection Under 35 U.S.C. §103(a)

Claims 1-8, 17-21 and 23-25 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP 9-157409 (hereinafter JP 409) in view of U.S. Patent No. 4,192,928 (hereinafter Tanaka). This rejection is respectfully traversed.

In the Office Action, the Patent Office acknowledged that JP 409 failed to teach or suggest a non-porous waterproof polyurethane film that includes an amount of an araliphatic diol in the polyurethane. The Patent Office turned to the teachings of Tanaka as allegedly

suggesting the use of an aliphatic diol in a polyurethane composition in order to control tackiness or stickiness. The Patent Office thus concluded that it would have been obvious to have included an aliphatic diol in the composition of JP 409, motivated to control the tackiness of the water vapor permeable film of JP 409.

Contrary to the conclusions of the Patent Office, Applicants respectfully submit that one of ordinary skill in the art would not have been led to have combined the teachings of the references in the manner set forth in the Office Action.

JP 409 discloses a non-porous, waterproof and water vapor permeable film based on a thermoplastic polyurethane.

On the other hand, although Tanaka describes a thermoplastic polyurethane, Tanaka describes a very different material with very different properties such that one of ordinary skill in the art would not have been led to have combined the teachings in the manner alleged in the Office Action. For example, Tanaka does not disclose a film at all. Tanaka instead discloses a material useful for forming artificial leather. While the film of the present application may have a thickness of from about 10 to about 50 micrometers (see the top of page 6 of the present specification), the artificial leather material described in Tanaka has a thickness of about 1,000 micrometers or more (see Tanaka at col. 13, lines 8-25), which exceeds the thickness of the presently claimed non-porous, waterproof film by a factor of about 100. Tanaka thus describes a thick artificial leather material that is incomparable to a film.

Still further, Tanaka does not teach or suggest a non-porous, waterproof polyurethane film. Instead, Tanaka discloses a porous material. As an artificial leather, Tanaka is not at all concerned with waterproofness or water vapor permeability. The porous polyurethane material described in Tanaka would not be waterproof, but instead would be water permeable due to the porous structure of the artificial leather and high content of long chain diol in the polyurethane (see Tanaka at col. 13, Table 1).

Porous and non-porous materials are distinctly different from each other. Substance is transported mainly through the pores of a porous material, while only a negligible amount is transported through the material itself. On the other hand, substance transport through a non-porous film results from a completely different transport mechanism in that the substance is transported solely through the non-porous material itself.

More in detail, substance transport through a non-porous film is a relatively slow process. In order to achieve higher permeability, a film with a thickness as small as possible is desirable. Thus, the non-porous polyurethane film of the present application preferably has a thickness of from about 10 to about 50 micrometers. Tanaka, however, describes an artificial leather with a thickness of 1 mm or more. A thickness of more than 1 mm applied to a non-porous material would lead to a virtually water vapor impermeable material.

Thus, in view of the different material and very different nature of the material described in Tanaka, one of ordinary skill in the art would not have looked to Tanaka for any teachings relevant to the non-porous, waterproof film such as described in JP 409.

Still further, it must be strongly emphasized that in non-porous, waterproof, water vapor permeable films, any change in the chemical composition of the film material is known to affect the permeability of the non-porous film. In fact, addition of chemical compounds to the polyurethane of a non-porous, waterproof film typically has a negative impact on permeability. Thus, one of ordinary skill in the art would not have turned to the teachings of Tanaka for this still further reason.

More specifically, the araliphatic diol described in Tanaka that is used to reduce tackiness does change the physical properties of the polyurethane material. However, it does not have any influence on the pore size of the polyurethane material described in Tanaka. Because of this, the addition of the araliphatic diol in Tanaka is irrelevant therein because Tanaka describes formation of a porous material, and addition of the araliphatic diol has no

effect on the porosity. Because Tanaka is not concerned with the permeability of the artificial leather, addition of the araliphatic diol in Tanaka is not a problem.

However, one of ordinary skill in the art concerned with non-porous, waterproof, water vapor permeable polyurethane films would necessarily be very concerned regarding any changes to permeability of the resulting film. As mentioned above, change of the chemical composition of the polyurethane does in fact affect the permeability of the polyurethane, and thus addition of an araliphatic diol to the polyurethane of JP 409 would have been of great concern as most likely adversely affecting the permeability of the polyurethane film.

Thus, because one of ordinary skill in the art is highly concerned with the permeability properties of non-porous, waterproof and water vapor permeable polyurethane films, and because Tanaka describes a porous material where permeability is not a concern, one of ordinary skill in the art would not have turned to the teachings of Tanaka for any teachings relevant to non-porous, waterproof, water vapor permeable polyurethane films. One of ordinary skill in the art simply would not have combined the teachings of Tanaka and JP 409, and certainly would have had no reasonable expectation of success in deriving a non-porous, waterproof polyurethane film still having suitable permeability.

The fact that the presently claimed invention was able to achieve a non-porous, waterproof, water vapor permeable polyurethane film having the water vapor permeability specified in claim 1 while including in the polyurethane an araliphatic diol was quite surprising and unexpected, and is nowhere taught or suggested by either JP 409 or Tanaka.

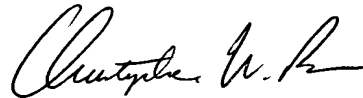
For all the foregoing reasons, Applicants respectfully submit that one of ordinary skill in the art would not have been led to the presently claimed invention from the teachings of JP 409 and Tanaka. Reconsideration and withdrawal of this rejection are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-8, 17-21 and 23-25 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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